AMENDMENTS TO THE CLAIMS

1. (Previously presented) A semiconductor bridge igniter comprising:

a substrate;

an electrical bridge structure disposed on the substrate, the bridge structure comprising a bridge section and pad sections, the bridge section extending between and connecting the pad sections, each pad section being of larger area than the bridge section, the pad sections and bridge section each comprising a layer of semiconductor material on the substrate and a layer of metal disposed on the semiconductor material, the layer of metal comprising titanium and the bridge section being free of a layer of tungsten; and

a pair of electrically conductive lands each overlying a respective one of the pad sections and being spaced apart from each other to leave the bridge section exposed.

2. (Original) The semiconductor bridge igniter of claim 1 further comprising a pair of electrical leads, one connected to a respective one of the electrically conductive lands.

3. (Original) The semiconductor bridge igniter of claim 2 further including a source of electrical energy connected to each of the electrical leads to define an electrical circuit extending from one lead, to one of the electrically conductive lands, through the bridge section, thence to the other electrically conductive land and the other electrical lead.

4. (Original) The semiconductor bridge igniter of claim 3, wherein the source of electrical energy comprises a capacitor.

5. (Canceled)

6. (Previously Presented) The semiconductor bridge igniter of claim 1 wherein the substrate comprises sapphire or a silicon dioxide layer.

7. (Previously Presented) The semiconductor bridge igniter of claim 1 wherein the semiconductor material has a negative coefficient of electrical conductivity at temperatures above ambient temperature.

8. (Previously Presented) The semiconductor bridge igniter of claim 7 wherein the semiconductor material comprises polysilicon or crystalline silicon.

9. (Previously Presented) The semiconductor bridge igniter of claim 1 wherein the semiconductor material comprises undoped crystalline silicon.

10. (Canceled).

11. (Previously Presented) The semiconductor bridge igniter of claim 1 disposed in contact with an energetic material charge contained within the header of an igniter assembly.

12 – 14 (Canceled)

15. (Previously Presented) The semiconductor bridge igniter of claim 1, wherein each of the electrically conductive lands is disposed on the layer of metal comprising titanium.

16. (Previously Presented) The semiconductor bridge igniter of claim 15, wherein the electrically conductive lands comprise a metal selected from the group comprising aluminum, gold, silver, chromium, and combinations thereof.

17 - 34. (Canceled)

35. (Previously Presented) The semiconductor bridge igniter of claim 1 wherein the semiconductor material has, at ambient temperatures, a greater resistivity than the titanium and, at an elevated temperature lower then the melting point of the titanium, a lesser resistivity than the titanium.

36. (Currently amended) A semiconductor bridge igniter comprising:

a substrate;

an electrical bridge structure disposed on the substrate, the bridge structure comprising a bridge section and pad sections, the bridge section extending between and connecting the pad sections, each pad section being of larger area than the bridge section, the pad sections and bridge section each comprising a layer of semiconductor material on the substrate and a layer of metal disposed on the semiconductor material, the layer of metal consisting of titanium and the bridge section being free of a layer of tungsten; and

a pair of electrically conductive lands each overlying a respective one of the pad sections and being spaced apart from each other to leave the bridge section exposed.

37. (Previously presented) The igniter of claim 1 wherein the igniter has a lower input energy requirement for initiation than an identically sized semiconductor bridge igniter layer that comprises a bridge section that includes a layer of tungsten.

38. (Canceled)

39. (Canceled)

40. (Currently amended) A method of initiating a semiconductor bridge igniter that comprises a substrate, an electrical bridge structure disposed on the substrate, the bridge structure comprising a bridge section and pad sections, the bridge section extending between and connecting the pad sections, each pad section being of larger area than the bridge section, the pad sections each comprising a layer of semiconductor material on the substrate and a layer of metal on the semiconductor material, the bridge section comprising the layer of semiconductor material and a layer of metal comprising titanium on the semiconductor material, and a pair of electrically conductive lands each overlying a respective one of the pad sections and being spaced apart from each other to leave the bridge section exposed, the method comprising applying an initiation signal to the conductive lands, melting the ~~layer of~~ metal of the bridge section and then vaporizing the semiconductor material of the bridge section.

41. (New) The method of claim 40, wherein the bridge section is free of a layer of tungsten.

42. (New) The method of claim 40, wherein the bridge section is free of tungsten.

43. (New) The semiconductor bridge igniter of claim 1, wherein the bridge section is free of tungsten.

44. (New) The semiconductor bridge igniter of claim 1 wherein the bridge structure is free of a layer of tungsten.

45. (New) The semiconductor bridge igniter of claim 1 wherein the bridge structure is free of tungsten.

46. (New) The semiconductor bridge igniter of claim 1 wherein the igniter is free of a layer of tungsten.

47. (New) The semiconductor bridge igniter of claim 1, wherein the igniter is free of tungsten.

48. (New) The semiconductor bridge igniter of claim 36, wherein the bridge section is free of tungsten.

49. (New) The semiconductor bridge igniter of claim 36 wherein the bridge structure is free of a layer of tungsten.

50. (New) The semiconductor bridge igniter of claim 36 wherein the bridge structure is free of tungsten.

51. (New) The semiconductor bridge igniter of claim 36 wherein the igniter is free of a layer of tungsten.

52. (New) The semiconductor bridge igniter of claim 36 wherein the igniter is free of tungsten.

53. (New) A semiconductor bridge igniter comprising:

a substrate;

an electrical bridge structure disposed on the substrate, the bridge structure comprising a bridge section and pad sections, the bridge section extending between and connecting the pad sections, the pad sections each comprising a layer of semiconductor material on the substrate and a layer of titanium disposed on the semiconductor material, and the bridge section consisting of a layer of semiconductor material and a layer of titanium disposed on the semiconductor material; and

a pair of electrically conductive lands each overlying a respective one of the pad sections and being spaced apart from each other to leave the bridge section exposed.

54. (New) A semiconductor bridge igniter comprising:

a substrate;

an electrical bridge structure disposed on the substrate, the bridge structure consisting of a bridge section and pad sections, the bridge section extending between and connecting the pad sections, the pad sections and bridge section each consisting of a layer of semiconductor material on the substrate and a layer of titanium disposed on the semiconductor material; and

a pair of electrically conductive lands each overlying a respective one of the pad sections and being spaced apart from each other to leave the bridge section exposed.

55. (New) A method of initiating a semiconductor bridge igniter that comprises substrate, an electrical bridge structure disposed on the substrate, the bridge structure comprising a bridge section and pad sections, the bridge section extending between and connecting the pad sections, each pad section being of larger area than the bridge section, the pad sections each comprising a layer of semiconductor material on the substrate and a layer of metal on the semiconductor material, the bridge section comprising the layer of semiconductor material and a barrier layer of metal on the semiconductor material, and a pair of electrically conductive lands each overlying a respective one of the pad sections and being spaced apart from each other to leave the bridge section exposed, the method comprising applying an initiation signal to the conductive lands, melting each barrier layer and then vaporizing the semiconductor material of the bridge section.

56. (New) The method of claim 55, wherein the barrier layer comprises titanium.

57. (New) The method of claim 55, wherein the barrier layer comprises titaniulm and is free of a layer of tungsten.

58. (New) The method of claim 56, wherein the barrier layer comprises titanium and is free of tungsten.